

**Scholar** Results 1 - 10 of about 32 for combinatorial auction integer program "column generation". (0.06

**Combinatorial auctions: a survey**

S De Vries, RV Vohra - [Cited by 142](#) - [Web Search](#)

... it the **combinatorial auction** problem (CAP). (We assume that the auctioneer is a seller and bidders are buyers.) CAP can be formulated as an **integer program**. ...  
INFORMS Journal on Computing, INFORMS Institute for Operations Research and the Management ..., 2003 - extenza-eps.com - [hss.caltech.edu](#) - [iew3.technion.ac.il](#) - [gdit.iiit.net](#) - [all 29 versions](#) »

[PS] **Column Generation and the Airline Crew Pairing Problem**

R Anbil, JJ Forrest, WR Pulleyblank - [View as HTML](#) - [Cited by 25](#) - [Web Search](#)

... on seniority, sometimes by an **auction** process ... convergence rate issues and **column generation** integrated into ... bound for solving the overall mixed **integer program**. ...  
Proceedings of the International Congress of Mathematicians ... - [emis.ams.org](#) - [rattler.cameron.edu](#) - [kurims.kyoto-u.ac.jp](#) - [emis.dsd.sztaki.hu](#) - [all 41 versions](#) »

**An iterative online auction for airline seats**

M Eso - [View as HTML](#) - [Cited by 5](#) - [Web Search](#)

... that this is a multi-unit **combinatorial auction** where the ... can be used to solve the **Integer Program** to optimality ... set of flights offered for **auction** is extended ...  
IBM Research Center, 2001 - [research.ibm.com](#) - [research.ibm.com](#)

**Combinatorial and Quantity-Discount Procurement Auctions Benefit Mars, Incorporated and Its ...**

G Hohner, J Rich, E Ng, G Reid, AJ Davenport, JR ... - [Cited by 8](#) - [Web Search](#)

... For **combinatorial** auctions, the winning prices are provided ... winning bids in some round of the **auction**. ... the performance of the **integer-programming** solvers ...  
Interfaces, INFORMS Institute for Operations Research and the Management ..., 2003 - extenza-eps.com - [solab.kaist.ac.kr](#) - [bilkent.edu.tr](#) - [portal.acm.org](#) - [all 7 versions](#) »

**Mathematical Challenges of Combinatorial Auction Design**

J Case - [View as HTML](#) - [Cited by 1](#) - [Web Search](#)

... s bidding software SBID, likewise based on **integer** programming, is said ... **Combinatorial** auctions seem likely to occupy the attention of **auction** theorists for ...  
SIAM News, 2000 - [siam.org](#) - [matc.siam.org](#) - [siam.org](#) - [gateway.siam.org](#) - [all 5 versions](#) »

[PS] **Combinatorial Auctions: A Brief Survey (draft)**

S de Vries, R Vohra - [View as HTML](#) - [Web Search](#)

... **Combinatorial Auction** Problem (CAP). This paper is devoted to summarizing what is known about this issue. The problem can be formulated as an **Integer program**. ...  
Iri.fr

**CABOB: A Fast Optimal Algorithm for Winner Determination in Combinatorial Auctions**

T Sandholm, S Suri, A Gilpin, D Levine, I ... - [View as HTML](#) - [Web Search](#)

... following table gives the unique optimal values for each of the decision variables for both the **combinatorial** auction (that is, the **integer program** (IP)) and ...  
Management Science, to appear, 2004 - [www-2.cs.cmu.edu](#) - [www-2.cs.cmu.edu](#)

**In this issue**

C PRACTICE, T Notes - [View as HTML](#) - [Web Search](#)

... problem as a mixed **integer program** and develop ... first-price or second-price **auction**

## A BRANCH-AND-PRICE ALGORITHM AND NEW TEST PROBLEMS FOR SPECTRUM AUCTIONS

O Gunluk, L Ladanyi, S de Vries - [View as HTML](#) - [Cited by 2](#) - [Web Search](#)

... One very important aspect of a good **integer program**- ... To provide some intuition, we next consider a small **combinatorial auction** that has a single round ...

Management Science, to appear, 2004 - [optimization-online.org](http://optimization-online.org) - [iwim.uni-bremen.de](http://iwim.uni-bremen.de) - [iwim.uni-bremen.de](http://iwim.uni-bremen.de) - [optimization-online.org](http://optimization-online.org)

## Auctions-the Big Winner Among Trading Mechanisms for the Internet Economy

R Mueller, U Maastricht - [Cited by 3](#) - [Web Search](#)

... round columns to the **integer** linear programming ... added to the linear **program**, can improve ... In a multi-round **combinatorial auction**, **column generation** means that ...

[www-edocs.unimaas.nl](http://www-edocs.unimaas.nl) - [merit.unimaas.nl](http://merit.unimaas.nl) - [infonomics.nl](http://infonomics.nl) - [ideas.repec.org](http://ideas.repec.org)

Goooooogle ►

Result Page:    1   2   3   4    [Next](#)

combinatorial auction integer prog

[Google Home](#) - [About Google](#)

©2005 Google

**Scholar** Results 11 - 20 of about 32 for combinatorial auction integer program "column generation". (0.0

Generalized Knapsack Solvers for Multi-Unit **Combinatorial** Auctions: Analysis and Application to ...

T Kelly - [View as HTML](#) - [Web Search](#)

... much of the flexibility and generality of integer programming ... bids KP (MCKP) M S S "combinatorial weighted set ... 27] XOR bids [37] Table 1. Auction types and ... ai.eecs.umich.edu - hpl.hp.com - www-csag.ucsd.edu - ana.lcs.mit.edu - all 8 versions »

Chapter 14: Optimal Winner Determination Algorithms

T Sandholm - [View as HTML](#) - [Web Search](#)

...  $j \in [0,1]$  yields a linear program (LP) and ... search, a common search strategy in the integer programming ... The CABOB (Combinatorial Auction Branch on Bids) (Sand ... www-2.cs.cmu.edu

IBM Research Report

L Ladanyi, J Lee, R Lougee-Heimer - [View as HTML](#) - [Web Search](#)

... 11 Page 14. associate dual variables  $\pi \in \mathbb{R}^m$  with the demand constraints, and our column-generation subproblem is max  $m$  ... 2.3 Solving the integer program ... domino.watson.ibm.com

Formulations and Reformulations in Integer Programming

M Trick - [View as HTML](#) - [Web Search](#)

... variety of difficult combinatorial optimization problems ... scheduling, combinatorial auction winner determination ... reformulation rules integer programmers have ... mat.gsia.cmu.edu

IBM Research Report

LS Curves - [View as HTML](#) - [Web Search](#)

... truly combinatorial in nature since synergies or substitutability ... negotiation at which the auction takes place ... be formulated as an Integer Program as follows: ... research.ibm.com - research.ibm.com - researchweb.watson.ibm.com

Scheduling and combinatorial auctions: Lagrangean relaxation-based bounds for the WJISP

T Elendner, T Elendner - [View as HTML](#) - [Cited by 2](#) - [Web Search](#)

... the winner determination of the presented combinatorial auction. ... an instance generator for general combinatorial auctions which ... the data to be integer-valued ... Manuskripte aus den Instituten für Betriebswirtschaftslehre, ..., 2003 - halfbrunt.bwl.uni-kiel.de

Optimal Winner Determination Algorithms for Combinatorial Auctions and Generalizations

T Sandholm - [View as HTML](#) - [Web Search](#)

... The fastest general-purpose mixed integer program solvers, CPLEX and XPress-MP ... distinct numbers, as is the case in combinatorial auction winner determination. ... cs.cmu.edu - cs.cmu.edu - www-2.cs.cmu.edu

Voss, Stefan; Martello, Silvano; Osman, Ibrahim H.; and Roucairol, Catherine, eds. 1999.

B Lev - [Web Search](#)

... of the book is on combinatorial—but also ... programming and Benders decomposition, the auction algorithm for ... courses, such as networks and integer programming ... INTERFACES, 2000 - extenza-eps.com - extenza-eps.com - pubsonline.informs.org

**Auction Based Mechanism for Electronic Procurement**

TS Chandrashekar, Y Narahari, S H Rosa, D Kulkarni, ... - [View as HTML](#) - [Web Search](#)

... LP Linear **Program** IP **Integer Program** MIP **Mixed Integer Program** MILP **Mixed Integer**

Linear **Program** GP **Goal Programming** CA **Combinatorial Auction** GVA **Generalized ...**

lcm.csa.iisc.ernet.in - [lcm.csa.iisc.ernet.in](#)

**Assessorato Turismo, Sport, Commercio e Trasporti**

A al Turismo, MS Resort - [View as HTML](#) - [Web Search](#)

... 7 AIROWinter 2003 **Program ...** When items in a bid are all different we call it a Single Unit **Combinatorial Auction (SUCA)**, while when a bid may specify a number of ...

beopt.eu.org



Result Page: [Previous](#) [1](#) [2](#) [3](#) [4](#) [Next](#)

combinatorial auction integer prog

[Google Home](#) - [About Google](#)

©2005 Google

**Scholar** Results 21 - 30 of about 32 for combinatorial auction integer program "column generation". (0.0

Algorithms for Piecewise Linear Knapsack Problems with Applications in Electronic Commerce

S Kameshwaran - [View as HTML](#) - [Cited by 1](#) - [Web Search](#)

... intensively studied NP-hard **combinatorial** optimization problems. ... Y. Narahari: Innovative **auction** mechanisms for ... Knapsack Problem IP Integer Programming (problem ...

Ph. D. dissertation, Department of Computer Science and ... - [people.csa.iisc.ernet.in](http://people.csa.iisc.ernet.in) - [people.csa.iisc.ernet.in](http://people.csa.iisc.ernet.in)

Adaptive labeling algorithms for the dynamic assignment problem

WB Powell, W Snow, RK Cheung, C Bay, HK Kowloon - [Cited by 10](#) - [Web Search](#)

... to each other and to an optimal solution based on a **column-generation** technique. ...

First, the problem is an **integer program** that can contain a large number of ...

Transportation Science, INFORMS Institute for Operations Research and the Management ..., 2000 - [extenza-eps.com](http://extenza-eps.com) - [castlelab.princeton.edu](http://castlelab.princeton.edu) - [dx.doi.org](http://dx.doi.org) - [portal.acm.org](http://portal.acm.org) - [all 7 versions »](#)

Abstracts of Plenary Talks

MAH Dempster, MC Ferris - [View as HTML](#) - [Web Search](#)

... as a large-scale linear **program** with a ... the branch & price approach to **Integer Programming** (IP ... algorithms for a variety of **combinatorial** optimisation problems ... [apmod.org.uk](http://apmod.org.uk)

Parallel branch, cut, and price for large-scale discrete optimization

TK Ralphs, L Ladanyi, MJ Saltzman - [Cited by 7](#) - [Web Search](#)

... **Program**., Ser ... as VLSI routing, theorem proving, game theory, **combinatorial** optimization, and ... particularly important for our study of mixed **integer** programs (see ...

Mathematical Programming, 2003 - [springerlink.com](http://springerlink.com) - [lehigh.edu](http://lehigh.edu) - [lehigh.edu](http://lehigh.edu)

MO Opening Session

P Toth, B Lev, L Thomas, M Trick, J Gibb, G Savard - [View as HTML](#) - [Web Search](#)

... over to other problem with **combinatorial** constraints. ... in a single round sealed-bid **combinational auction**. ... problem, we constructed an **integer** linear programming ...

[som.umd.umich.edu](http://som.umd.umich.edu)

Public transit

G Desaulniers, MD Hickman - [View as HTML](#) - [Library Search](#) - [Web Search](#)

... Also, a non-linear **program** is formulated for re-optimization of frequencies ... In this procedure, a **column generation** technique is used to avoid re- evaluating ...

[gerad.ca](http://gerad.ca) - [gerad.ca](http://gerad.ca)

Transportation on demand

JF Cordeau, G Laporte, JY Potvin, MWP Savelsbergh - [View as HTML](#) - [Library Search](#) - [Web Search](#)

... i. The VRPPDTW can be formulated as the following **mixed-integer program**: ... a set-partitioning formulation of the problem and an exact **column generation** algorithm ...

[isye.gatech.edu](http://isye.gatech.edu) - [isye.gatech.edu](http://isye.gatech.edu)

[PS] The Workshop for Cooperative Control and Optimization

P Pardalos - [View as HTML](#) - [Web Search](#)

... to recombine the results via an **auction**. ... of intensive computational experiments in **combinatorial** optimization and ... into a binary **integer** programming problem ...

[ise.ufl.edu](http://ise.ufl.edu)

The Workshop for Cooperative Control and Optimization

JWR Union, P Pardalos - [View as HTML](#) - [Web Search](#)

... the coordinator to recombine the results via an **auction**. ... computational experiments in **combinatorial** optimization and ... into a binary **integer** programming problem ...  
ise.ufl.edu

A survey of optimization models for long-haul freight transportation

T Crainic - [View as HTML](#) - [Cited by 3](#) - [Library Search](#) - [Web Search](#)

Page 1. A Survey of Optimization Models for Long-Haul Freight Transportation

Teodor Gabriel Crainic Département des sciences administratives ...

Publication du CRT, 1998 - [crt.umontreal.ca](http://crt.umontreal.ca) - [isye.gatech.edu](http://isye.gatech.edu) - [crt.umontreal.ca](http://crt.umontreal.ca) - [all 4 versions »](#)

◀ Goooooogle ▶

Result Page: [Previous](#) [1](#) [2](#) [3](#) [4](#) [Next](#)

combinatorial auction integer prog

[Google Home](#) - [About Google](#)

©2005 Google

**Scholar** Results 31 - 32 of 32 for combinatorial auction integer program "column generation". (0.02 seco

[PS] Heterogenous Scheduling and Rostering

M Aronsson, P Holmberg, P Kreuger, S Lindblom - [View as HTML](#) - [Web Search](#)

... Example: Linear program Maximize  $c_1 x_1 + \dots + c_n x_n$  where  $a_{11} x_1 + \dots + a_{1n} x_n$

$b_1 \dots a_{m1} x_1 \dots$  LP (linear progr.) IP (integer progr.) CP (constraint progr ...

it.kth.se - [imit.kth.se](#) - [sics.se](#)

Mathematisches Forschungsinstitut Oberwolfach

RE Bixby, D Simchi-Levi - [View as HTML](#) - [Web Search](#)

... Handbook of Discrete and Combinatorial Mathematics" Rosen ... processes and pricing and auction models that ... and scope of mixed integer programming applications ...

mfo.de



Result Page: [Previous](#) [1](#) [2](#) [3](#) [4](#)

combinatorial auction integer prog

Search

[Google Home](#) - [About Google](#)

©2005 Google

**Scholar** Results 1 - 10 of about 32 for **combinatorial auction integer program "column generation"**. (0.06

**Combinatorial auctions: a survey**

S De Vries, RV Vohra - [Cited by 142](#) - [Web Search](#)

... it the **combinatorial auction** prob- lem (CAP). (We assume that the auctioneer is a seller and bidders are buyers.) CAP can be formulated as an **integer program**. ... INFORMS Journal on Computing, INFORMS Institute for Operations Research and the Management ..., 2003 - extenza-eps.com - [hss.caltech.edu](#) - [iew3.technion.ac.il](#) - [gdit.iiit.net](#) - [all 29 versions](#) »

[PS] **Column Generation and the Airline Crew Pairing Problem**

R Anbil, JJ Forrest, WR Pulleyblank - [View as HTML](#) - [Cited by 25](#) - [Web Search](#)

... on seniority, sometimes by an **auction** process ... convergence rate issues and **column generation** integrated into ... bound for solving the overall mixed **integer program**. ... Proceedings of the International Congress of Mathematicians ... - [emis.ams.org](#) - [rattler.cameron.edu](#) - [kurims.kyoto-u.ac.jp](#) - [emis.dsd.sztaki.hu](#) - [all 41 versions](#) »

**An iterative online auction for airline seats**

M Eso - [View as HTML](#) - [Cited by 5](#) - [Web Search](#)

... that this is a multi-unit **combinatorial auction** where the ... can be used to solve the **Integer Program** to optimality ... set of flights offered for **auction** is extended ... IBM Research Center, 2001 - [research.ibm.com](#) - [research.ibm.com](#)

**Combinatorial and Quantity-Discount Procurement Auctions Benefit Mars, Incorporated and Its ...**

G Hohner, J Rich, E Ng, G Reid, AJ Davenport, JR ... - [Cited by 8](#) - [Web Search](#)

... For **combinatorial auctions**, the winning prices are pro- vided ... winning bids in some round of the **auction**. ... the per- formance of the **integer-programming** solvers ... Interfaces, INFORMS Institute for Operations Research and the Management ..., 2003 - extenza-eps.com - [solab.kaist.ac.kr](#) - [bilkent.edu.tr](#) - [portal.acm.org](#) - [all 7 versions](#) »

**Mathematical Challenges of Combinatorial Auction Design**

J Case - [View as HTML](#) - [Cited by 1](#) - [Web Search](#)

... s bidding software SBID, likewise based on **integer programming**, is said ... **Combinatorial auctions** seem likely to occupy the attention of **auction** theorists for ... SIAM News, 2000 - [siam.org](#) - [matc.siam.org](#) - [siam.org](#) - [gateway.siam.org](#) - [all 5 versions](#) »

[PS] **Combinatorial Auctions: A Brief Survey (draft)**

S de Vries, R Vohra - [View as HTML](#) - [Web Search](#)

... **Combinatorial Auction Problem** (CAP). This paper is devoted to summarizing what is known about this issue. The problem can be formulated as an **Integer program**. ... lri.fr

**CABOB: A Fast Optimal Algorithm for Winner Determination in Combinatorial Auctions**

T Sandholm, S Suri, A Gilpin, D Levine, I ... - [View as HTML](#) - [Web Search](#)

... following table gives the unique optimal values for each of the decision variables for both the **combinatorial auction** (that is, the **integer program** (IP)) and ... Management Science, to appear, 2004 - [www-2.cs.cmu.edu](#) - [www-2.cs.cmu.edu](#)

**In this issue¼**

C PRACTICE, T Notes - [View as HTML](#) - [Web Search](#)

... problem as a mixed **integer program** and develop ... first- price or second-price **auction**



**Scholar** Results 21 - 30 of about 32 for combinatorial auction integer program "column generation". (0.0

Algorithms for Piecewise Linear Knapsack Problems with Applications in Electronic Commerce

S Kameshwaran - [View as HTML](#) - [Cited by 1](#) - [Web Search](#)

... intensively studied NP-hard combinatorial optimization problems. ... Y. Narahari: Innovative auction mechanisms for ... Knapsack Problem IP Integer Programming (problem ...

Ph. D. dissertation, Department of Computer Science and ... - [people.csa.iisc.ernet.in](#) - [people.csa.iisc.ernet.in](#)

Adaptive labeling algorithms for the dynamic assignment problem

WB Powell, W Snow, RK Cheung, C Bay, HK Kowloon - [Cited by 10](#) - [Web Search](#)

... to each other and to an optimal solution based on a column-generation technique. ...

First, the problem is an integer program that can contain a large number of ...

Transportation Science, INFORMS Institute for Operations Research and the Management ..., 2000 - [extenza-eps.com](#) - [castlelab.princeton.edu](#) - [dx.doi.org](#) - [portal.acm.org](#) - [all 7 versions](#) »

Abstracts of Plenary Talks

MAH Dempster, MC Ferris - [View as HTML](#) - [Web Search](#)

... as a large-scale linear program with a ... the branch & price approach to Integer Programming (IP ... algorithms for a variety of combinatorial optimisation problems ...

[apmod.org.uk](#)

Parallel branch, cut, and price for large-scale discrete optimization

TK Ralphs, L Ladanyi, MJ Saltzman - [Cited by 7](#) - [Web Search](#)

... Program., Ser ... as VLSI routing, theorem proving, game theory, combinatorial optimization, and ... particularly important for our study of mixed integer programs (see ...

Mathematical Programming, 2003 - [springerlink.com](#) - [lehigh.edu](#) - [lehigh.edu](#)

MO Opening Session

P Toth, B Lev, L Thomas, M Trick, J Gibb, G Savard - [View as HTML](#) - [Web Search](#)

... over to other problem with combinatorial constraints. ... in a single round sealed-bid combinatorial auction. ... problem, we constructed an integer linear programming ...

[som.umd.umich.edu](#)

Public transit

G Desaulniers, MD Hickman - [View as HTML](#) - [Library Search](#) - [Web Search](#)

... Also, a non-linear program is formulated for re-optimization of frequencies ... In this procedure, a column generation technique is used to avoid re-evaluating ...

[gerad.ca](#) - [gerad.ca](#)

Transportation on demand

JF Cordeau, G Laporte, JY Potvin, MWP Savelsbergh - [View as HTML](#) - [Library Search](#) - [Web Search](#)

... i. The VRPPDTW can be formulated as the following mixed-integer program: ... a set-partitioning formulation of the problem and an exact column generation algorithm ...

[isye.gatech.edu](#) - [isye.gatech.edu](#)

[PS] The Workshop for Cooperative Control and Optimization

P Pardalos - [View as HTML](#) - [Web Search](#)

... to recombine the results via an auction. ... of intensive computational experiments in combinatorial optimization and ... into a binary integer programming problem ...

[ise.ufl.edu](#)

The Workshop for Cooperative Control and Optimization

JWR Union, P Pardalos - [View as HTML](#) - [Web Search](#)

... the coordinator to recombine the results via an auction. ... computational experiments in combinatorial optimization and ... into a binary integer programming problem ...  
ise.ufl.edu

A survey of optimization models for long-haul freight transportation

T Crainic - [View as HTML](#) - [Cited by 3](#) - [Library Search](#) - [Web Search](#)

Page 1. A Survey of Optimization Models for Long-Haul Freight Transportation

Teodor Gabriel Crainic Département des sciences administratives ...

Publication du CRT, 1998 - [crt.umontreal.ca](#) - [isye.gatech.edu](#) - [crt.umontreal.ca](#) - [all 4 versions »](#)

◀ Gooooogle ▶

Result Page: [Previous](#) [1](#) [2](#) [3](#) [4](#) [Next](#)

combinatorial auction integer prog

[Google Home](#) - [About Google](#)

©2005 Google

**Scholar** Results 31 - 32 of 32 for combinatorial auction integer program "column generation". (0.02 seco

**[PS] Heterogenous Scheduling and Rostering**

M Aronsson, P Holmberg, P Kreuger, S Lindblom - [View as HTML](#) - [Web Search](#)

... Example: Linear program Maximize  $c_1 x_1 + \dots + c_n x_n$  where  $a_{11} x_1 + \dots + a_{1n} x_n$

$b_1 \dots a_{m1} x_1 \dots$  LP (linear progr.) IP (integer progr.) CP (constraint progr. ...

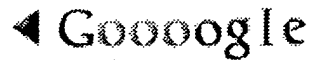
it.kth.se - [imit.kth.se](#) - [sics.se](#)

**Mathematisches Forschungsinstitut Oberwolfach**

RE Bixby, D Simchi-Levi - [View as HTML](#) - [Web Search](#)

... Handbook of Discrete and Combinatorial Mathematics" Rosen ... processes and pricing and auction models that ... and scope of mixed integer programming applications ...

mfo.de



Result Page: [Previous](#) [1](#) [2](#) [3](#) [4](#)

combinatorial auction integer prog

Search

[Google Home](#) - [About Google](#)

©2005 Google

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**